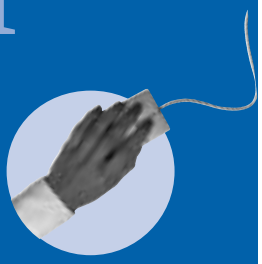
Energy-Saving Tips for Small Businesses

Hands-on *Solutions* to Improve Your *Profits & Productivity*



U.S. Department of Energy

HANDS-ON SOLUTIONS

"Energy-efficiency improvements have helped to reduce our production costs. And this has led to greater market and business growth."

– JOHN LESSARD
President, Fox River Mills in Osage, Iowa

"…energy efficiency holds out the hope of combining ecological sanity with economic advance."

– ALVIN TOFFLER
Author, Powershift

Contents

Saving Energy Is Good Business

As a business owner or operator, you know that energy expenses are part of the cost of doing business. But did you know that there are proven no-cost or low-cost steps you can take right now to save energy? By choosing energy-efficient measures that fit your situation, you can easily save hundreds or even thousands of dollars annually in energy costs.

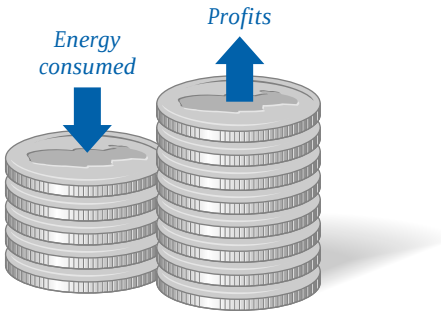
ENERGY-EFFICIENT MEASURES CAN HELP

- Lower energy costs
- Increase productivity
- Improve the bottom line
- Obtain attractive investment return
- Improve competitive position
- Show environmental responsibility.

EVALUATING ENERGY USE

To discover where you can save energy, you'll first need to look at your energy profile—how much energy you use, where you use it, and how much it costs. Maybe you use energy for space heating or cooling or water heating. What about lighting or running office equipment or production machines? Does fuel for transportation make up part of your energy picture?

Next, add all your energy expenses together. You may be surprised to find that the total amounts to several thousand dollars. Then, use this booklet to begin learning about equipment and techniques that can save you 20% or more on energy costs.



Six Major Areas for Savings

It's time to get your hands on these proven savings methods.

Saving energy is good business. It enables you to improve your bottom line and do something good for the environment at the same time. And your company's reputation for wise energy use can lead to even greater customer appeal. Look for ways to save in six major areas.

Lighting

More efficient lighting is cost effective and often increases productivity.

Buildings

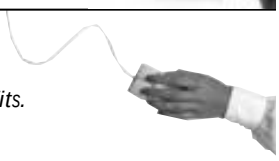
Most buildings have room for improvements in energy efficiency.

HVAC and Solar

Several simple measures can save money and increase comfort.

Equipment and Machines

Attention to your equipment and machines brings multiple benefits.



Motors

Assistance is readily available for optimizing motor use and costs.

Vehicles

Business-related transportation costs can be managed to reduce expenses.

Lighting

Lighting is both the largest user of electricity and the easiest area in which to save in commercial buildings.

The meeting is over, but someone left the lights on in the conference room. Using automatic lighting controls is a good way to save energy in areas where occupancy varies.

Myth

You should leave lights on, even when they are not being used, because this is less costly in the long run.

Fact

With the cost of electricity today, turning lights off is more cost effective. Also, newer lighting equipment is more durable, so on-off cycling is OK. For building security, it's best to use products designed for security.

Many businesses are lowering their lighting bills by installing energy-efficient equipment such as fluorescent and compact fluorescent lamps, task lighting, reflectors, and lighting controls.

Participants in the Environmental Protection Agency's Green Lights program are using lighting options to cut their bills in half—and earn an average 58% return on their investment. (See *For More Information* on page 6.)

Using energy-efficient equipment also reduces the incidence of eyestrain and headaches among employees, actually improving worker productivity. Energy-saving retrofits also can raise the market value of a building and provide an edge in competitive leasing markets.

LIGHTING OPTIONS

Your choice of lighting equipment will depend on your application, but certain equipment is commonly found in effective lighting systems.

Energy-efficient fluorescent lamps

Energy-efficient fluorescents save about 35% of the wattage used by standard fluorescents and last just as long. Although the energy-efficient lamps are more expensive than standard fluorescents, the energy savings more than compensates for the extra cost. Efficient lighting systems that replace standard fluorescents also provide more accurate color rendering, which may improve marketability of products such as food or clothing.

Electronic ballasts

When replacing standard fluorescents with energy-efficient lamps, it's necessary to replace the existing ballasts. When doing so, be sure to specify electronic ballasts. They operate 75% more quietly than conventional ballasts, eliminating the familiar flicker and hum of older fluorescent lights. Simple payback periods on these improvements can be as short as 1 to 2 years.

Task lighting

Task lighting is simple—uniformly light the areas where you actually need the light, rather than an entire area. In other words, use smaller, more efficient lights that bring the light source closer to the work area requiring illumination. This concept applies to such areas as offices, workrooms, and garages.

Reflectors

Reflectors can increase the effectiveness of a fluorescent lighting fixture by about 10% in some situations by reflecting additional light on the work space. Reflectors installed with energy-efficient fluorescent lamps and electronic ballasts can reduce lighting energy costs by as much as 70%.

Compact fluorescent lamps

Compact fluorescents can be a good alternative to incandescent light bulbs. Compact fluorescents last about 10 times longer than incandescent lamps. Lights that operate much of the time, such as in hallways or stairwells, are popular applications for compact fluorescent lamps.

Lighting controls

Manual controls can be used in spaces that accommodate different tasks or that have access to daylight. In this way, occupants can manually shut lights off when they aren't needed. Automatic controls such as occupancy sensors are convenient for turning lights off when certain areas—such as conference rooms, storage rooms, and restrooms—are unoccupied. Autodimming controls are available that automatically adjust light levels according to existing daylight.

For More Information

U.S. Department of Energy (DOE)
DOE provides information on energy efficiency and renewable energy technologies through two services.

Energy Efficiency and Renewable Energy Clearinghouse (EREC)
P.O. Box 3048
Merrifield, VA 22116
(800) DOE-EREC
Fax (703) 893-0400

Energy Efficiency and Renewable Energy Network (EREN)
http://www.eren.doe.gov/

Green Lights Program
U.S. Environmental Protection Agency
410 M Street, SW (6202J)
Washington, DC 20460
(202) 775-6650
Fax (202) 775-6680
The Green Lights program is a voluntary program which provides technical information, financing options, lighting software, and other services.

UTILITY COMPANY INVOLVEMENT

Many utilities are helping their customers buy and install efficient lighting equipment. A rebate from your utility can further cut the already short payback periods for investing in energy-efficient lighting. Your local utility can also be a good source of information on designing and purchasing lighting retrofits.

Buildings

Your building probably has room for low-cost energy efficiency improvements. Besides saving you money, these improvements lead to greater comfort for staff and customers.

This owner could improve her business's financial outlook with some simple energy-saving measures.

Did you know that each year, poorly insulated windows account for as much lost heating energy as the amount of energy flowing through the Alaskan pipeline annually? This lost energy costs us more than $22 billion a year—more than the annual sales of Shell Oil Company in 1993. The cost of this lost energy equates to about one-third of our nation's oil import payments or one-fifth of our nation's trade deficit in 1993! This is just one example of an energy-saving opportunity—one that you can address with the following suggestions.

Myth

Buildings need a certain amount of air leakage to bring in fresh air.

Fact

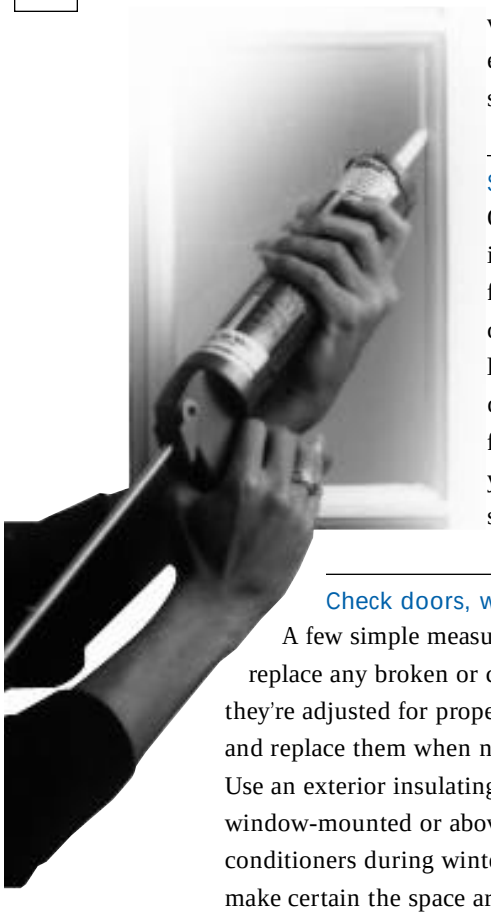
Most buildings have far more air leakage than that required for ventilation, thus wasting large amounts of money.

MAKE YOUR BUILDING WORK BETTER

When you evaluate how your building is using energy, you may find many opportunities for efficiency improvements. Consider the following areas.

Isolate unused spaces

Often, your building contains space that isn't used by people and may not require space conditioning. Isolate these areas by closing heating and cooling vents and covering exterior windows. Sealing unused exterior windows and doors can represent a valuable security benefit, too.



Stop leaks

One of the easiest and quickest dollar-saving techniques is caulking leaks in your building. Heat always flows from a warmer environment to a cooler one—when it's cold outside, heat tends to leak outward. Eliminating leaks in your building exterior (like walls, windows, doors, ceilings, and floors) works to your advantage for both heating and cooling. When it's windy outside, your ears or sense of touch may guide you to substantial leaks.

Check doors, windows, and other openings

A few simple measures can really help prevent leakage. For example, replace any broken or cracked glass. Use automatic door closers, be sure they're adjusted for proper operation, and replace them when necessary. Use an exterior insulating cover on window-mounted or above-door air conditioners during winter. Finally, make certain the space around your air conditioner is thoroughly sealed.

For More Information

U.S. Department of Energy (DOE)
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Energy Efficiency and Renewable Energy Clearinghouse (EREC)
P.O. Box 3048
Merrifield, VA 22116
(800) DOE-EREC
Fax (703) 893-0400

Energy Efficiency and Renewable Energy Network (EREN)
http://www.eren.doe.gov/

HVAC and Solar

Many of the same measures that have proven effective in people's homes can be applied at your business.

This business owner is adjusting her building's awnings to prevent sunlight from entering the building and introducing unwanted heat.

You probably spend many energy dollars on heating and cooling your building. Employee comfort is a high priority, and product quality may dictate certain temperature requirements. Installing the programmable thermostats and energy-efficient boilers and water heaters described in this section is an easy way to start saving energy; proper maintenance is equally important.

You may also be able to save energy by managing the sunlight that falls on your building. Solar hot water systems and solar heating systems are two potentially economical solar energy technologies you might want to consider.

Myth

Leaving your furnace at a constant setting is most efficient.

Fact

Setting temperatures according to actual need is now easy and cost effective with programmable thermostats.

HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

Businesses have found that the following basic steps can save energy, increase comfort, and enhance equipment operation.

Programmable thermostats

These simple microprocessor-based products offer as much as a 50% rate of return on energy dollars. In addition, these devices will maintain system start-up and set-back schedules for optimum comfort. They can also eliminate unnecessary HVAC use during unoccupied hours.

Furnace maintenance and cleaning

An easy first step is to replace dirty air filters. It's often well worth the expense to have a trained specialist inspect and perform needed maintenance on your furnace and cooling system. Also, simple maintenance such as cleaning intake screens, condenser coils, supply registers, and return grills can make a difference in your energy bills.

Duct maintenance and repair

Typical duct systems lose energy from your heating and air-conditioning equipment. Use duct tape to seal duct joints and elbows where accessible. Insulate any duct work in unconditioned space, such as roofs, attics, crawl spaces, and basements. Identify and repair damaged or disconnected ducts while you check the system.

Boilers

If your building uses a boiler for heating, follow the factory maintenance schedule and procedures. If you're using a fuel other than natural gas, consider switching to natural gas, which is less expensive. If maintenance costs for your existing boiler have become excessive or you need to replace your boiler, replace it with a high-efficiency model.

Ventilation rate

Building ventilation is necessary so that your building has a reasonable supply of fresh air. However, excessive ventilation rates increase your heating and cooling costs dramatically. Have a professional engineer or trained specialist optimize your system's ventilation rate.

Hot water supply

Your hot water temperature is often set higher than you really need. Gradually set the temperature downward until you reach an optimum. You can also install flow restrictors and self-closing faucets; they'll reduce your hot water use. Finally, check your entire system for leaks and repair them.

Water heater

One of the most effective measures you can use is an insulating jacket for the water heater. These jackets are easily found at large convenience, building, and hardware supply stores. A simple electronic time-of-use controller will ensure that your electric water heater is off when not needed.

SOLAR ENERGY

You can use the sun's energy to maximize natural lighting and heating, which will decrease costs for artificial lighting and space heating.

On the other hand, you may live in a very warm, sunny climate where air-conditioning is your building's greatest energy expense. In that case, you'll want to minimize the effects of the sun's energy.

Direct sunlight: enhancement or control

Sunlight striking your building can work for you or against you. When you're trying to cool your building, you don't want sunlight pouring in through windows, doors, and skylights, adding considerably to your air-conditioning bills. However, when you're heating your building, you want the sunlight to enter your building.

During the air-conditioning season, provide shading to windows, doors, and skylights. This can be done effectively with awnings, sunscreens, shade trees, and shrubbery.

During the heating season, you can save money by permitting sunlight to enter the building through windows and other openings. In addition, you'll attain the benefits of daylighting.

Solar hot water systems

Many small businesses (for example, restaurants, bars, and dry cleaners) have large water-heating needs that can be economically and reliably met by solar energy. Depending on the cost of your current water-heating system and its energy source (oil, electricity, natural gas, or propane), basic solar water heating or preheating may make economic sense. Check with local or state energy offices, local utilities, energy businesses, universities, or your accountant for the availability of state tax incentives or technical assistance to businesses using solar water heating systems.

Solar heating systems as supplements to HVAC systems

Most commercial/industrial warehouses in cold-weather states are heavy users of thermal energy—heat. In most areas, an all-electric heating system (the most easily installed) will be expensive to operate and will leave you vulnerable to power outages and ever-increasing energy rates.

Supplemental space heating is efficiently provided by the transpired solar collector, a type of solar collector that heats air for the building. In 1994, this new collector received a "Best of What's New" award from *Popular Science (*February 1994, page 20). This system has been effectively demonstrated, meeting winter head-on in Canada. Check with local or state energy offices, local utilities, energy businesses, universities, or your accountant for the availability of state tax incentives or technical assistance to businesses using solar heating systems.

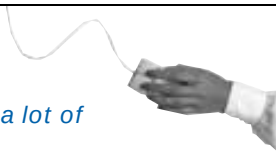
For More Information

U.S. Department of Energy (DOE)
DOE provides information on energy efficiency and renewable energy technologies through two services.

Energy Efficiency and Renewable Energy Clearinghouse (EREC)
P.O. Box 3048
Merrifield, VA 22116
(800) DOE-EREC
Fax (703) 893-0400

Energy Efficiency and Renewable Energy Network (EREN)
http://www.eren.doe.gov/

Equipment and Machines



Your office equipment and machines may consume a lot of electricity. This is a great opportunity for savings.

In a busy office, your computers are running constantly, regardless of their use. Running your equipment and machines more efficiently will save you money.

Myth

Leaving computers, monitors, and copiers on is best for the equipment and doesn't use much electricity.

Fact

Leaving office equipment on wastes considerable energy—and you pay for it. New equipment is designed so that repeated cycling on and off won't damage it.

Electricity use for office equipment is growing faster than any other category of electricity use in the commercial buildings sector. This category includes computers, monitors, printers, facsimile machines, and copiers. Energy use by office equipment is expected to grow by as much as 500% in the next decade.

It takes less electricity to run energy-efficient office equipment; using energy-saving equipment also saves on air-conditioning costs because the equipment produces less waste heat. More efficient equipment can also increase occupant comfort by cooling areas more uniformly and reducing HVAC system noise.

HELP YOUR BUSINESS

The following are some ideas to help you save.

Turn off equipment

About 30% to 40% of personal computers and printers are left running at night and on weekends, and these machines are idle as much as 90% of their workday ontime.

Don't be confused by so-called "screen savers"—they don't save electricity in computer monitors; they are meant to prevent phosphor "burn-in" on the screen.

Cycling power on and off to your computer will not harm late-model machines. Energy Star computers, monitors, and printers (see *For More Information* below) can automatically power down to save electricity when not being used. Don't forget to consider sharing printers and copiers; this will decrease their idle time and provide for more cost-effective use of the equipment.

For More Information

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(800) DOE-EREC
Fax (703) 893-0400

Energy Efficiency and Renewable Energy Network (EREN)

http://www.eren.doe.gov/

Energy Star Program

U.S. Environmental Protection Agency
401 M Street, SW MC 6202
Washington, DC 20460
(202) 233-9114
Fax (202) 233-9578

*The **Energy Star** program works with manufacturers and end users to bring more energy-efficient computers to the market.*

Buy energy-efficient equipment

Specify energy efficiency as a purchasing criteria to help you select equipment in a sometimes confusing marketplace.

Also, check your other appliances for energy-saving opportunities. For example, businesses such as restaurants and other food service providers rely heavily on refrigeration equipment and freezers. Refrigeration equipment can include such efficiency options as hot-gas defrost and evaporative condensers. These options can easily yield a return-on-investment of as much as 50%. High-efficiency, cost-effective equipment is now readily available, so be sure to ask for it when you're shopping.

Motors

Your business can take advantage of new electric motor systems that are more efficient and reliable than your present ones.

Many businesses, like this shoe repair shop, use motors extensively. Motor system efficiency improvements can achieve a return on investment of better than 50%.

Myth

Oversizing motor capacity is best.

Fact

Today's electricity prices argue for better precision in sizing motors. The old practice of oversizing motors was begun when electricity was less expensive.

Electric motors supply most of the so-called "drive energy" in the United States and consume more than half of the nation's electricity. Electric motors are used in pumps, fans, and compressors, and for materials processing and handling.

A typical industrial motor operating a large percentage of the time consumes five to ten times its capital cost in electricity every year. That's like spending $100,000 a year on gas for a $10,000 car. This also means that small gains in efficiency translate into big gains in savings.

IMPROVING MOTOR EFFICIENCY

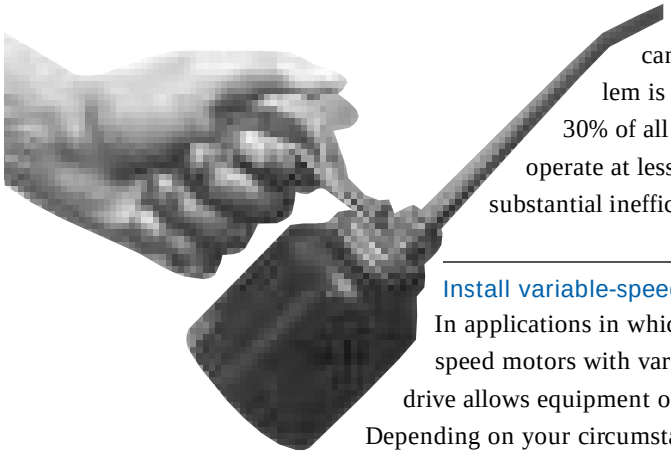
If your motor-related energy expenses are high, or if you need to replace a motor, consider the following four ways to achieve savings.

Install efficient motors

Energy-efficient motors are available that use less energy to accomplish the same amount of work. Depending on the size, type, and manufacturer, energy-efficient motors typically cost 10% to 30% more than standard models. Because of superior design and higher quality production, these motors tend to be more reliable, produce less waste heat, and run more quietly than standard models.

Downsize oversized motors

Unfortunately, it has been common practice for many years to oversize motors. But because motors are inefficient when running at less than 50% of rated load, oversized and underloaded motors can waste energy and money. This problem is extensive: audits indicate that about 30% of all industrial and commercial motors operate at less than 50% of full load, resulting in substantial inefficiency costs.



Install variable-speed drives

In applications in which loads fluctuate, replace single-speed motors with variable-speed drives. A variable-speed drive allows equipment output to more exactly match demand. Depending on your circumstances, variable-speed drive can reduce motor energy use by 10% to 70%.

Adhere to proper maintenance schedules

Careful monitoring and maintenance are necessary to keep a high-efficiency motor system operating properly, and the energy savings from good maintenance is significant. Additional benefits include more reliable, trouble-free operation, and extended equipment life.

TOOLS FOR IMPROVING MOTOR EFFICIENCY

Tools are available to help overcome the obstacles to improving motor system efficiency.

MotorMaster

MotorMaster is a comprehensive, user-friendly software package designed to help with motor selection and evaluation. This package is especially useful to managers trying to decide whether to repair or replace electric motors in their plant. It was developed by the Washington State Energy Office with funding from the U.S. Department of Energy (DOE) and the Bonneville Power Administration.

MotorMaster has specific features designed to support utility-sponsored motor rebate programs. The package includes a database of price and performance information on more than 10,000 motors from all major manufacturers. It can easily be customized for individual utilities, manufacturers/distributors, municipalities, or large corporations. The software is free to all Motor Challenge Partners (see *For More Information* below) and is updated annually.

Motor Challenge

Motor Challenge is a partnership program involving DOE, industry, utilities, motor/drive manufacturers and distributors, and others. If you are classified as an industrial company, you should contact the Motor Challenge Information Clearinghouse (see *For More Information* at left). You can obtain reliable, up-to-date information to enhance the quality and profitability of your electric motor system decisions.

For More Information

U.S. Department of Energy (DOE)

DOE provides information on energy efficiency and renewable energy technologies through two services.

Energy Efficiency and Renewable Energy Clearinghouse (EREC)
P.O. Box 3048
Merrifield, VA 22116
(800) DOE-EREC
Fax (703) 893-0400

Energy Efficiency and Renewable Energy Network (EREN)
http://www.eren.doe.gov/

DOE also provides information on efficient motors.

Motor Challenge Information Clearinghouse
P.O. Box 43171
Olympia, WA 98504
(800) 862-2086
Fax (360) 586-8303

Vehicles

Using alternative fuels can save on fuel costs for your business and create less air pollution.

Switching to an alternative fuel in your business vehicles, such as in this delivery vehicle, could save you money.

If your business maintains a vehicle fleet or provides delivery services, you'll want to investigate how you can save money on fuel. Businesses such as florists, office supplies, travel agencies, auto parts, plumbing, heating, and electrical contractors, lawn and pool maintenance services, and carpet and drapery cleaning services are good candidates for fuel savings.

The following sections show you and your employees how to save money and energy by using conventional-fueled vehicles, or by using alternative-fueled vehicles. Other transportation options are also discussed. Besides achieving money and energy savings, these measures will help lessen transportation-related air pollution.

Myth

There are no available and proven alternatives to gasoline or diesel fuel.

Fact

Natural gas, propane, ethanol, methanol, and electric vehicles have well-established cost and performance records. And these fuels produce less air pollution than gasoline or diesel fuel.

CONVENTIONAL FUELS

Each year the U.S. Department of Energy (DOE) publishes a *Fuel Economy Guide,* which lists the miles per gallon (mpg) ratings for all vehicles available for the new model year. If you are planning to buy new vehicles this year, you may want to review the *Guide* to help you determine which vehicles are likely to save your company money through lower fuel costs.

Your drivers can also be made more aware of ways in which they can drive more effectively to save on fuel. Combining errands into one trip, turning an engine off rather than letting it idle for more than a minute, getting a tune-up regularly, avoiding jackrabbit starts, and not carrying unnecessary weight in vehicles are all ways to save on gasoline. The *Guide* provides these and other driving hints.

The *Fuel Economy Guide* is available through your automobile dealer, or it can be ordered free of charge from the Energy Efficiency and Renewable Energy Clearinghouse (see *For More Information* on page 20).

ALTERNATIVE FUELS

If you have a fleet of 10 or more vehicles, it is possible that you may be required to comply with either the Clean Air Act or the Energy Policy Act requirements for fleets. These requirements have been put in place to help increase U.S. energy security through increased use of alternative fuels, or to improve our country's air quality.

The Energy Policy Act requires the use of alternative fuels such as natural gas, electricity, methanol, ethanol, or propane in certain percentages for some fleets. The Clean Air Act requires that your vehicles meet certain emissions standards through the use of alternative fuels or reformulated gasoline and clean diesel fuel.

To find out more about these fuels and to determine whether your fleet must comply, you can call the DOE Alternative Fuels Hotline (see *For More Information* on page 20).

OTHER TRANSPORTATION OPTIONS

Other transportation options may be worth evaluating for use in your business. Helping employees take advantage of mass transit, ride sharing, and alternative work schedules often increases employee morale and loyalty. These options may also translate to good community relations because you're supporting efforts to reduce pollution, dependence on foreign oil, and traffic congestion.

Mass transit

Encouraging your employees to use rail and bus mass transit is the most effective means of alleviating urban gridlock and air pollution from private vehicles.

For More Information

U.S. Department of Energy (DOE)

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Energy Efficiency and Renewable Energy Clearinghouse (EREC)
P.O. Box 3048
Merrifield, VA 22116
(800) DOE-EREC
Fax (703) 893-0400

Energy Efficiency and Renewable Energy Network (EREN)
http://www.eren.doe.gov/

DOE also provides information about fuels and regulations.

National Alternative Fuels Hotline
(800) 423-1363

Ride sharing

Car or van pooling can be an effective transportation measure. Check with your local mass transit agency, or your local or state energy office, for information about ride-sharing programs in your area.

Alternative work schedules

Continuing to grow in popularity, alternative work schedules shift work hours away from peak traffic-flow times, which decreases traffic congestion, commuting time, and driver anxiety. Depending on your type of business, this measure may be appropriate for you.

Getting Organized: A Step-by-Step List

Now that you have some idea of how to proceed with energy efficiency improvements, use the following list to aid your planning.

1. **Gather and total all your energy costs.** Pull together your past year's bills and total these costs. Be sure you're adding all the bills from different energy sources (utilities, vendors, and service stations). You may want to keep your heating and cooling costs separate from your transportation-related costs.

2. **Get a professional energy audit or do a self-audit.** Contact your local utility, municipal services department, or local university for technical or financial assistance. Or, based on the information presented in this booklet, perform your own assessment of your energy use and areas for improvement.

3. **Enlist the aid of staff members.** They may prove to be your best asset. You can offer employee incentives for substantial savings if you have high energy use or if your operation is large.

4. **Develop a list of best options.** Assemble a list of options based on the information provided in this booklet and your investigation of your energy use situation. Use cost and ease of implementation to rank choices. If appropriate, get staff input on selection of action items.

5. **Implement your plan and take action.** Carry out the action plan and start saving money for an improved bottom line.

6. **Track savings and energy use. Don't forget this step.** Evidence of tangible rewards can help improve staff morale and encourage cooperation.

Please send us your story—we'd like to know about your savings and successes so we can share them with others. Send your stories to: Small Businesses/BG, U.S. Department of Energy, c/o NREL, 1617 Cole Boulevard, Golden, CO 80401-3393.

Financing Options

The potential for energy savings in your business may be tremendous but, naturally, you're wondering what it's going to cost. The financial marketplace has responded by developing financing options that involve little or no risk.

LOW-COST CREATIVE FINANCING

Described below are some promising, low-cost financing methods.

Guaranteed savings

In this option, an energy service company agrees to install and service HVAC equipment for your business.

The price of the contract is set below that of your current energy costs. Consequently, no monetary investment is required on your part, and the service company pays for capital improvements and maintenance costs. The contractor earns a profit by meeting your energy needs at a cost below the contract price. Your business is guaranteed a savings, regardless of whether the contractor achieves its target savings.

Shared energy savings

This method, also known as performance contracting, resembles guaranteed savings. An energy service company installs, operates, and maintains energy-efficient equipment at no cost to you. The dollar savings are split at varying percentages between you and contractor over the life of the contract, under which the contractor pays all initial investment and service costs, typically for a period of 5 to 7 years. After the contract is completed, you have the option of buying the equipment at its current market value or having it removed. If you buy the equipment, all future savings are yours.

Leasing options: operating or financing

Operating leases are usually short term, often month to month. At the end of the lease, you do not own the equipment. You can either renew the lease, buy the equipment for its value at the end of the lease (lease with option to buy), or acquire other equipment. Tax benefits accrue to the lessor; however, some of the benefits may be passed on to you.

A financing lease involves paying for the energy equipment in installments. In this type of lease, you own the equipment and, therefore, can take advantage of applicable tax credits and other benefits.

Where to Turn for Expert Assistance

There are many assistance programs throughout the United States that are targeted at businesses, including programs through the U.S. Department of Energy (DOE), the U.S. Small Business Administration (SBA), your state energy office, energy service companies (ESCOs), and your local utility.

U.S. DEPARTMENT OF ENERGY

DOE programs relating to energy efficiency originate in the Office of Energy Efficiency and Renewable Energy. This office has responsibility for demand and supply technologies in four areas: utilities, transportation, industry, and buildings.

Energy Efficiency and Renewable Energy Clearinghouse (EREC)
(800) DOE-EREC

Provides answers to the public's questions on energy efficiency and renewable energy. Internet address: http://www.eren.doe.gov/

DOE Regional Support Offices
The main gateways to DOE energy efficiency programs are the DOE regional support offices, which provide both information and assistance. Consult the list to determine which regional support office serves your state.

Atlanta DOE Support Office
730 Peachtree Street, NE, Suite 876
Atlanta, GA 30308
(404) 347-2837
(AL, AR, FL, GA, KY, MS, NC, PR, SC, TN; Territory: VI)

Boston DOE Support Office
One Congress Street, 11th Floor
Boston, MA 02114
(617) 565-9700
(CT, MA, ME, NH, NY, RI, VT)

Chicago DOE Support Office
One South Wacker Drive, Suite 2380
Chicago, IL 60606
(312) 353-6749
(IA, IL, IN, MI, MN, MO, OH, WI)

Denver DOE Support Office
2801 Youngfield Street, Suite 380
Golden, CO 80401
(303) 231-5750
(CO, KS, LA, MT, ND, NE, NM, OK, SD, TX, UT, WY)

Philadelphia DOE Support Office
1880 JFK Boulevard, Suite 501
Philadelphia, PA 19103
(215) 656-6950
(DC, DE, MD, NJ, PA, VA, WV)

Seattle DOE Support Office
800 Fifth Avenue, Suite 3950
Seattle, WA 98104
(206) 553-1004
(AK, AZ, CA, HI, ID, NV, OR, WA)

In addition, DOE makes information available to the public through the following sources:

Alternative Fuels Hotline
(800) 423-1DOE

Provides general and technical information on alternative fuel availability, vehicles, regulations, legislation, and more.

Motor Challenge Program Hotline
(800) 862-2086

Provides information on energy-efficient electric motor systems.

Industrial Assessment Centers

Since 1978, DOE has been sponsoring free energy audits for small and medium-size manufacturers. Conducted by centers at a number of universities around the country, these audits provide recommendations to manufacturers to help them control costs and improve their plants' energy efficiency.

In 1993, DOE teamed with the EPA to expand the program to include "industrial assessments" that cover opportunities for productivity improvement and waste reduction, as well as energy savings. Initially, the university centers operated as Energy Analysis and Diagnostic Centers that conducted energy audits only. After 2 years of experience and training, the centers become Industrial Assessment Centers qualified to conduct productivity and waste reduction analysis.

For information about the Industrial Assessment Center Program, contact:
Charles Glaser, Program Manager
Office of Industrial Technologies
U.S. Department of Energy, EE-223
1000 Independence Avenue, SW
Washington DC 20585
(202) 586-1298
Fax (202) 586-6507
charles.glaser@hq.doe.gov

Western Region Centers

- Bradley University (IL)
- Colorado State University
- Iowa State University
- Oklahoma State University
- Oregon State University
- San Diego State University
- San Francisco State University
- South Dakota State University
- Texas A & I University
- Texas A & M University
- University of Arizona
- University of Arkansas
- University of Missouri
- University of Nevada

For information contact:
University City Science Center
Industrial Technology and Energy Management Division
3624 Market Street
Philadelphia, PA 19104
(215) 387-2255

Eastern Region Centers

- Georgia Institute of Technology
- Hofstra University (NY)
- Mississippi State University
- North Carolina State University
- Old Dominion University (VA)
- University of Dayton (OH)
- University of Florida
- University of Louisville
- University of Maine
- University of Massachusetts
- University of Michigan
- University of Notre Dame
- University of Tennessee
- West Virginia University
- University of Wisconsin

For information contact:
Office of Industrial Productivity and Energy Assessment
Rutgers University
P.O. Box 1179
Piscataway, NJ 08854
(908) 445-3655

U.S. SMALL BUSINESS ADMINISTRATION

The U. S. Small Business Administration (SBA) offers a variety of financial and technical services for small businesses. In addition, the SBA administers 57 Small Business Development Centers (SBDCs) which are educational and research resources for small businesses. They help small business owners deepen their understanding of small business management, and they provide data and analysis that is generally beyond the capacity of small businesses to purchase in the private sector.

Call the Answer Desk at (800) 8-ASK-SBA for information or for the SBDC nearest you. The SBA and SBDCs also provide information on-line (see page 26).

STATE ENERGY AND ENVIRONMENTAL OFFICES

State energy and environmental offices frequently employ scientific and technical experts. These professionals are usually an excellent and ready source of information; they are often very familiar with energy issues specific to a particular state's climate, resources, and economy. Your DOE regional support office can put you in touch with your state energy office (see listing under U.S. Department of Energy, page 23).

ENERGY SERVICE COMPANIES

It sounds too good to be true, but you may be able to contract with an energy service company (ESCO) to install energy efficiency measures paid for through energy savings. Energy savings performance contracting is a growing trend because it offers both parties a win-win situation. In 1994, ESCOs accounted for $1 billion in revenues.

Under a performance contract arrangement, an ESCO provides a service package that typically includes financing, installation, and maintenance of energy-saving capital improvements. Performance contracts are often structured as leases, but with guarantees that payments will not exceed energy savings. These payments dramatically reduce financial risk. For assistance locating ESCOs in your area, contact the National Association of Energy Service Companies (NAESCO), 1200 G Street NW, Suite 760, Washington, DC 20004. (202) 347-0419.

LOCAL ENERGY OFFICES, UNIVERSITIES, AND UTILITIES

Local technical or financial assistance programs may already exist in your area. For example, your community may have a city energy office. The local university or college may have experts available for consultation and guidance. Your local utility may provide technical assistance or financial incentives for energy improvements.

ELECTRONIC RESOURCES

Electronic bulletin boards started as message centers for computer owners with similar interests. Although this simple function remains a vital part of today's electronic information exchange, the bulletin boards have evolved into more versatile entities—similar to a library without walls. They can provide access to databases, electronic mail (e-mail), file libraries, news, and of course, forums for open discussion.

The Energy Efficiency and Renewable Energy Network (EREN) is a gateway to energy efficiency and renewable energy information on the Internet from national laboratories and other organizations. It provides single-point access to computer bulletin boards; on-line catalogs; lists of manufacturers and vendors; and World Wide Web (WWW), Gopher, Telnet, and Wide Area Information servers. For information, call (800) DOE-EREC.

EREN
http://www.eren.doe.gov/

The Electric Ideas Clearinghouse is a comprehensive electronic bulletin board system for technical information about energy efficiency and renewable energy measures for commercial and industrial facilities. This clearinghouse also serves as a host site for the Motor Challenge bulletin board. Toll-free access is available from most of the western United States by calling (800) 797-7584. For information about the clearinghouse, call (206) 956-2237.

The clearinghouse is also available on the World Wide Web through EREN.

Electric Ideas Clearinghouse
http://www.eicbbs.wseo.wa.gov/

The Small Business Administration offers a variety of financial and technical services for small businesses.

In addition, there are 57 Small Business Development Centers throughout the country, many of which have provided energy savings assistance to small businesses.

SBA WWW Home Page
http://www.sbaonline.sba.gov/

SBA Gopher
gopher://www.sbaonline.sba.gov/

SBA On-Line (electronic bulletin board)
(800) 697-4636

National SBDC Research Network
http://www.smallbiz.suny.edu/

References and Sources

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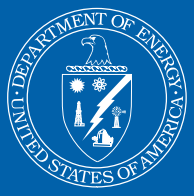
U.S. DEPARTMENT OF ENERGY (DOE)



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